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amy. (4.) The anthers of a flower on any individual plant pollinate and fecundate only the flowers on a different individual, whether the flowers be hermaphrodite, polygamous, monœcious, or diœcious: *dichogamy.* A number of experiments on the artificial fecundation of plants in the four different modes indicated above point to the conclusion that their relative fertility is in the inverse order to that in which they have been mentioned. Professor Delpino promises an additional paper on cleistogamous or closed self-fertilized flowers. — A. W. BENNETT.

ALPINE PLANTS OF THE WHITE MOUNTAINS. — We are glad to call attention to the following announcement: —

Collections of the Alpine and sub-Alpine plants of the White Mountains, N. H., containing more than fifty species, have been made during the past season, by William F. Flint and J. H. Huntington.

The number of sets is limited to fifty. They have been carefully arranged and ticketed, and will be sent by mail upon the receipt of five dollars ($5.00). Address William F. Flint, Hanover, N. H. (Box 348.)

BOTANICAL PAPERS IN RECENT PERIODICALS. — *Comptes rendus,* No. 8. Saintpierre and Magnieu, Researches on the Gas contained in the Fruits of *Colutea arborescens.* No. 9. De Luca, On the Alcoholic and Acetic Fermentation in the Fruits, Flowers, and Leaves of certain Plants. L. Fautrat, On the Influence exerted by Pine Forests on the Amount of Rainfall. No. 10. Renault, On the Silicified Plants of Autun.

Flora, No. 26. Nylander, New Cuban Lichens (Species of Ramalina) from Mr. Charles Wright's Collections. De Krempelhuber, New Brazilian Lichens. No. 27. De Thümen, Fungi from South Africa.

Botanische Zeitung, No. 37. Philippi, Notes on *Fuchsia macrostemma* and its Near Relatives. Philippi, Note respecting the Production of Wood after Injury in *Acacia decipiens.* No. 38. Reports of Societies. Sorokin, On *Morchella bispora.* No. 39. Salomonsen, On the Isolation of Different Forms of Bacteria. No. 40. Schenk, On Fossil Equisetaceæ.

ZOÖLOGY.

NEW SHELLS FROM COLORADO. — Mrs. M. A. Maxwell, of Boulder, Colorado, exhibited at the Centennial Exhibition a large number of animals and birds which attracted a great deal of attention. She brought with her a box of miscellaneous land and fresh-water shells gathered in the immediate vicinity of her home at Boulder, which is a few miles northeast of Denver, at an elevation above the sea of about 5535 feet. These shells she kindly entrusted to me for examination, and they seem to me worthy of notice, as they add materially to the previously known molluscan fauna of the State. In my report upon the Mollusks of Colorado, published by Dr. F. V. Hayden in 1874,[1] I endeavored to give the entire list of mollusks then known to inhabit Colorado, and also all within the Great Plains on the east and the crests of the Sierra Nevada range on the west, these being the limits assigned by Mr. W. G. Binney to his " Central Province." "Tabulating the sum of the information open to me, and including my own summer's work, I found that one hundred and thirty-eight nominal species had been recorded as occurring in this inter-montanic region. Of these forty-nine were also Californian species; fifteen occurred also in the Eastern United States; eight hailed from the Colorado Desert; seven were found all over the continent, eight all over the world, and three belonged in the Eastern Province west of the Alleghanies only. This left forty-seven nominal species whose range, so far as yet known, is confined to the Central Province." To this list I am now able to add six new names, as follows: ? *Limnea lepida* Gld. ? *Physa inflata* Lea. *Planorbis bicarinatus* Say. *Goniobasis pulchella* Anth. *Goniobasis livescens* Menke. *Anodonta* —— ?

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[1] Annual Report of the United States Geological and Geographical Survey, 1874, pages 385–410. The Mollusks of the Rocky Mountains: Popular Science Monthly, vol. ix., May, 1876.

All of these are new not only to Colorado, but to the whole province, so far as I can ascertain, except *Planorbis bicarinatus*, which has been reported from the Yellowstone. It will be observed that all of these are Eastern forms, except the Anodon, which may turn out to be new, or related to Californian species. We very much need further collections from these mountainous territories, the least of which will cast some light upon the geographical distribution of our mollusks over the extensive and greatly diversified areas which they inhabit, the conditions which determine their being wide-spread or restricted in their range, and the variations which may manifest themselves in form or habit.

Following is given a list of Mrs. Maxwell's collection, with remarks:

Zonites arboreus Say. Many specimens. Common in the State.

Zonites fulvus Drap. Several specimens of this very common shell.

Patula Cooperi W. G. B. Said to be abundant about Boulder, which is the first mention of its occurrence on the eastern slope of the range. Among the large number of specimens several are marked very distinctly from all the rest with " broader longitudinal and spiral patches of reddish brown," or burnt umber, as is mentioned in Binney's original description. They are difficult to distinguish from *P. solitaria*. As usual nearly all of the shells were found dead. The species seems to be dying out.

Patula striatella Anth. Four specimens.

Helix pulchella Müll. Abundant.

Cionella subcylindrica L. A few.

An exceedingly minute *Vertigo* with toothed aperture is represented by three specimens, but I cannot yet determine it.

Succinea lineata W. G. B. Several specimens.

Succinea Nuttalliana Lea. Two examples of a variety differing from the type mainly in having a smoother external surface.

? *Limnea lepida* Gld. Some young specimens, probably referable to this species.

Limnophysa desidiosa Say. Several specimens; not uncommon in that region.

Limnophysa humilis Say. Some examples of this shell, which is probably numerous throughout the Territories.

? *Physa inflata* Lea. Dr. James Lewis, who examined the fluviatiles of this collection, queries this identification, but admits that the type extends from Virginia to Colorado. Mr. Binney regards it as a synonym of *P. heterostropha.* There seem to be two specimens, of different ages.

Physa heterostropha Say. Many specimens of various sizes, but as near New York shells as well can be. It is hard to draw the boundary of variation here. Some of the specimens are thickly coated with rust from the iron-waters in which they have lived, and others with a white deposition accumulated from the water. They occur in great abundance everywhere among the mountains.

There is a *Bulinus* which looks as if it might be a variety of *B. hypnorum,* but is scarcely identifiable with that species.

Planorbis (*Helisoma*) *plexata* Ing. Three examples of this species, first described from my specimens, are among this lot, the largest and oldest one showing the twisted appearance very plainly.

Planorbis bicarinatus Say. This well-known shell is now first reported from Colorado, but has been found on the Yellowstone. These examples are of average size. The common *P. trivolvis* is not included in this collection.

Gyraulus parvus Say. Quantities of this shell, very common in Colorado.

Two imperfect specimens represent a diminutive *Ancylus* which it is difficult to name, but which somewhat resembles *A. diaphana.*

Goniobasis pulchella Anth. Several characteristic examples.

Goniobasis livescens Menke. A number of specimens.

Anodonta —— ? There is a single well-preserved example of an Anodon to which Dr. Lewis says he knows no reference, but has seen similar ones (not named) from California. It is about two inches long, brown and smooth without, somewhat decorticated over a large area, at the beaks, and lustrous blue within, changing to bronze under the hinges. Several much smaller ones of similar shape, but lighter-colored and thinner, may be the young of the former. If, as Dr. Lewis suggests, this should prove to be an undescribed species, it ought certainly to be dedicated to the energetic naturalist to whose intelligence and care we are indebted for this interesting collection of Colorado mollusks.

Sphærium striatinum Lam. Two specimens in fine condition, of medium size, but varying somewhat from the type toward *S. sulcatum.*

Pisidium abditum Hald. A large quantity of these shells which are vastly abundant in places all through the West. — ERNEST INGERSOLL.